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10/599,438	02/27/2008	Ulrich Craemer	078857.0193	8870

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EXAMINER	
CHEUNG, MANKO	

ART UNIT	PAPER NUMBER
4154	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,438	CRAEMER ET AL.	
	Examiner	Art Unit	
	MANKO CHEUNG	4154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12 February, 2007, 29 March 2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed on 3/29/07 (DE 19850175 and 10145485) fail to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

2. The disclosure is objected to because of the following informalities:

On page 4, paragraph [0012], a brief description of figure 4A and 4B should be included.

On page 4, paragraph [0013], line 9, "a voltage U" should be ---a voltage V---.

Appropriate correction is required.

Claim Objections

3. Claims 1-5, 9, 13 and 14 are objected to because of the following informalities:

In claim 1, line 8, "first" should be ---first condition---.

In claim 1, line 12, "condition" should be ---conditions---.

In claim 2, line 2, "condition" should be ---conditions---.

In claim 3, line 5, "condition" should be ---conditions---.

In claim 4, line 3, to avoid the lack of antecedent basis, "in the case of" should be ---in case of---.

In claim 4, line 6, "condition" should be ---conditions---.

In claim 5, line 3, "condition" should be ---conditions---.

In claim 13, line 5, "a signal-value-range" should be ---the signal-value-range---.

In claim 14, line 2, "a signal-value-range" should be ---the signal-value-range---.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

6. It has been held that the first step in determining whether a claim recites patent eligible subject matter is to determine whether the claim falls within one of the four statutory categories of invention recited in 35 USC § 101: process, machine, manufacture and composition of matter. The latter three categories define "things" or "products," while a "process" consists of a series of steps or acts to be performed. For

purposes of § 101, a "process" has been given a specialized, limited meaning by the courts.

Based on Supreme Court precedent and recent Federal Circuit decisions, it has been held that a § 101 process must (1) be tied to another statutory class (a particular machine or apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. If neither of these requirements is met by the claim, the method is not a patent eligible process under § 101 and should be rejected as being directed to non-statutory subject matter. Thus, to qualify as a § 101 statutory process, the claim ***should*** positively recite the other statutory class (the thing or product) to which it is tied, ***for example*** by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, ***for example*** by identifying the material that is being changed to a different state. (emphasis added).

Claims 1-10 are drawn to a process that is not tied to another statutory class and that does not transform any subject matter to a different state or thing. As such, claims 1-10 are rejected under 35 U.S.C. 101 as being drawn to non-statutory subject matter. The process claims 1-10 does not result in a particular transformation since the process only identifies a types of sensor.

7. Furthermore, Claims 1-10 are rejected under 35 U.S.C. 101 because claims 1-10 are drawn to a computer program. Claims 1-10 appears to be a computer program as being recited on page 5, paragraph 0017, line 1, "A ***program*** for recognizing a sensor

type" and on page 8, paragraph 0025, line 1, "According to figure 3 a ***program*** for processing the measuring signal V_SENS of the sensor". The computer program is considered to be a data structure that does not define any functional interrelationships between the data structures and other claimed aspects of the invention which permit the data structure's functionality to be realized. It has been held that such a data structure is considered to be non-statutory under 35 U.S.C. 101 (See e.g., Warmerdam 33 F.3d at 1361. 31 USPQZd at 1760).

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 6 and 11, "a signal-value-range *multiplex* output" is vague and indefinite as to what type of sensor has such limitation as well as how a sensor has a "multiplex" output.

Regarding claim 2, it recites "the first and second condition are in each case checked close in time to a start of operation of the sensor". It is unclear what constitute "close in time" and it has not been clearly defined. The examiner, therefore, interprets

the claim as "the first and second conditions are in each case checked ***right after*** the start of operation of the sensor".

Claims 7 and 12 are also rejected under 35 U.S.C. 112, second paragraph because of the same reason as shown in claim 2.

Regarding claim 3, on line 6 and 7, it recites "otherwise the sensor not having a signal-value-range multiplex output for the measuring signal." It is unclear what action should be carried out for the sensor not having a signal-value-range multiplex output for the measuring signal. Therefore, the examiner interpreted the claim as "otherwise the sensor not having a signal-value-range multiplex output for the measuring signal ***will be recognized***."

Claims 8 and 13 are also rejected under 35 U.S.C. 112, second paragraph because of the same reason as shown in claim 3.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1, 2, 6, 7, 11 and 12 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yook (U.S. Patent Application Publication 2003/0225505) in view of Faymon et al. (U.S. Patent No. 6,633,828) (insofar as understood).

Regarding claim 1, Yook discloses a method for recognizing a sensor type (a failure type or a normal type) [paragraph 0004, line 1-3; also see figure 2, step S52, S92 and S94] comprising the following steps

- checking a first condition (the difference between the maximum output value and the minimum output value) that will have been met if a measuring signal of a sensor exceeds (is not less than) a first threshold (0.078V) (paragraph 0021, line 1-4; also see figure 2, step S50)

- checking a second condition if the first has been met (paragraph 0022; also see figure 2, step S60).

- if the first condition (paragraph 0020; also see figure 2, step S50) and second condition (paragraph 0020; also see figure 2, step S60) have been met, then a sensor (fault sensor) having a signal-value-range multiplex output for the measuring signal will be recognized. It should be noted that the oxygen sensor inherently possesses signal-value-range multiplex output since it outputs a voltage for comparison, see [paragraph 0027, also see figure 2, step S92]).

- and if at least one of the conditions has not been met (figure 2, step S60), then a sensor (normal operating sensor) not having a signal-value-range multiplex output for the measuring signal will be recognized. It is inherent that the sensor does not have a

signal-value-range multiplex output since the sensor indicates a normal operation mode see [paragraph 0023, line 1-5; also see figure 2, step S94]).

Yook fails to disclose that the second condition is checking if the ***gradient*** of the measuring signal is greater in amount than a predefined second threshold in a second condition as claimed.

Faymon et al. (hereinafter Faymon) discloses a method of recognizing a sensor type (failure or not) having a method for checking the gradient (rate of change) of the measuring signal (column 4, line 46-47; also see figure 3; step S306) and compare the variance of the gradient (rate of change) of the measuring signal with a predefined limit to detect signal failure (column 5, line 19-23).

Therefore, it would be obvious to a person of ordinary skilled in the art at the time the invention was made to used Faymon method for measuring the rate of change (or gradient) of a signal with the modified method as taught in Yook so that the signal could be checked whether the resulting signal characteristics appear normal, within the expected range and not changing at an unreasonable rate as taught by Faymon (column 1, line 25-27).

Regarding claim 2 (insofar as understood), Yook also discloses a method wherein the first and second conditions are in each case checked close in time to a start of operation of the sensor. It would be obvious to a person of ordinary skill in the art at

the time the invention was made to recognize the signal of the oxygen sensor as taught in Yook is checked close in time (i.e., right after) to the start of operation of the sensor.

Regarding claim 6, Yook discloses a method for recognizing a sensor type (a failure type or a normal type) [paragraph 0004, line 1-3; also see figure 2, step S52, S92 and S94] comprising the steps of determining whether a measuring signal of a sensor [paragraph 0019, line 5-8] exceeds a first threshold (0.078V) [paragraph 0021, line 1-4; also see figure 2, step S50] and determining whether the measuring signal is greater in amount than a predefined second threshold [paragraph 0022; also see figure 2, step S60].

Yook fails to disclose that the step of determining based on the gradient of the measuring signal whether the signal is greater in amount than a predefined second threshold.

Faymon et al. (hereinafter Faymon) discloses a method for measuring the gradient (rate of change) of the measuring signal (column 4, line 46-47; also see figure 3; step S306) and compare the variance of gradient (the rate of change) of the measuring signal with a predefined limit to detect signal failure (column 5, line 19-23).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to used Faymon's method for measuring the gradient (rate of change) of the measuring signal with the method of diagnosing a failure sensor as taught by Yook so that the signal could be checked whether the resulting signal

characteristics appear normal, within the expected range and not changing at an unreasonable rate as taught by Faymon (column 1, line 25-27).

Also, Yook fails to expressly disclose that if the signal exceeds the first threshold and the gradient of the measuring signal is greater in amount than the predefined second threshold, then a sensor having a signal-value-range multiplex output for the measuring signal will be recognized, and if either step of determining fails, then a sensor not having a signal-value-range multiplex output for the measuring signal is recognized.

The modified method of Yook discloses that if the signal exceeds the first threshold [paragraph 0021, line 1-4] and the gradient of the measuring signal is greater in amount than the predefined second threshold (column 4, line 46-47; also see figure 3; step S306 and column 5, line 19-23) as taught by Faymon, then a sensor (fault sensor) having a signal-value-range multiplex output for the measuring signal will be recognized [paragraph 0027, also see figure 2, step S92], and if either step of determining fails, then a sensor (normal operating sensor) not having a signal-value-range multiplex output for the measuring signal is recognized [paragraph 0023, line 1-5; also see figure 2, step S94].

Regarding claim 7 (insofar as understood), Yook also discloses a method wherein the first and second conditions are in each case checked close in time to a start of operation of the sensor. It would be obvious to a person of ordinary skill in the art at

the time the invention was made to recognize the signal of the oxygen sensor as taught in Yook is checked close in time (right after) to the start of operation of the sensor.

Regarding claim 11, Yook discloses an arrangement for recognizing a sensor type [a failure type or a normal type, paragraph 0004, line 1-3; also see figure 2, step S52, S92 and S94] comprising: means for determining [ECU, paragraph 0014; also see figure 1, element 30] whether a measuring signal of a sensor exceeds a first threshold [0.078V, paragraph 0021, line 1-4] and means for determining [ECU, paragraph 0014; also see figure 1, element 30] whether the measuring signal is greater in amount than a predefined second threshold [0.3 V, paragraph 0021].

Yook fails to disclose that the step of determining used in the arrangement is based on the gradient of the measuring signal whether the signal is greater in amount than a predefined second threshold.

Faymon discloses a method for measuring the gradient (rate of change) of a measuring signal (column 4, line 46-47; also see figure 3; step S306) and compare the variance of the gradient (rate of change) of the measuring signal with a predefined limit to detect signal failure (column 5, line 19-23).

Therefore, it would be obvious to a person of ordinary skill in the art at the time the invention was made to used Faymon's method for measuring the gradient (rate of change) of the measuring signal with the method of diagnosing a failure sensor as taught by Yook so that the signal could be checked whether the resulting signal

characteristics appear normal, within the expected range and not changing at an unreasonable rate as taught by Faymon (column 1, line 25-27).

Also, Yook fails to expressly disclose that if the measuring signal of the sensor exceeds the first threshold and the gradient of the measuring signal is greater in amount than the predefined second threshold, then a sensor having a signal-value-range multiplex output for the measuring signal will be recognized, and if either step of determining fails, then a sensor not having a signal-value-range multiplex output for the measuring signal is recognized.

The modified method of Yook discloses that if the signal exceeds the first threshold [paragraph 0021, line 1-4] and the gradient of the measuring signal is greater in amount than the predefined second threshold (column 4, line 46-47; also see figure 3; step S306 and column 5, line 19-23) as taught by Raymon, then a sensor (fault sensor) having a signal-value-range multiplex output for the measuring signal will be recognized [paragraph 0027, also see figure 2, step S92], and if either step of determining fails, then a sensor (normal operating sensor) not having a signal-value-range multiplex output for the measuring signal is recognized [paragraph 0023, line 1-5; also see figure 2, step S94].

Regarding claim 12 (insofar as understood), Yook also discloses that the method used in the arrangement wherein the first and second conditions are in each case checked close in time to a start of operation of the sensor. It would be obvious to

a person of ordinary skill in the art at the time the invention was made to recognize the signal of the oxygen sensor as taught in Yook is checked close in time (right after) to the start of operation of the sensor.

12. Claims 3, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yook (U.S. Patent Application Publication 2003/0225505) in view of Faymon et al. (U.S. Patent No. 6,633,828) as applied to claims 1, 6 and 11 above, and further in view of Stavnheim et al. (U.S. Patent No. 6,076,504).

Regarding claim 3, the modified method of Yook fails to disclose that the sensor having the signal-value-range multiplex output for the measuring signal will be recognized if the first and second condition have been met a predefined number of times, and otherwise the sensor not having a signal-value-range multiplex output for the measuring signal *will be recognized*.

Stavnheim et al. discloses a method for recognizing a sensor (failure sensor) if the condition (figure 5, step 132) has been met a predefined number of times (column 9, line 24-29; also see figure 2, step 136), and otherwise the sensor not having a signal-value-range multiplex output for measuring signal will be recognized (it should be noted that the sensor does not have a signal-value-range multiplex output is inherently recognized if the conditions have not been met a predefined number of times).

Therefore, it would be obvious to a person of ordinary skill in the art at the time the invention was made to use Stavheim et al's counting method with the modified

method of Yook so that the type of sensor would accurately be determined after being checked many times as suggested by Stavheim et al. (column 8, line 36-41).

Regarding claim 8, the modified method of Yook fails to disclose that the sensor having the signal-value-range multiplex output for the measuring signal will be recognized if the first and second condition have been met a predefined number of times, and otherwise the sensor not having a signal-value-range multiplex output for the measuring signal *will be recognized.*

Stavnheim et al. discloses a method for recognizing a sensor (failure sensor) if the condition (figure, step 132) has been met a predefined number of times (column 9, line 24-29; also see figure 2, step 136), and otherwise the sensor not having a signal-value-range multiplex output for measuring signal will be recognized (it should be noted that the sensor does not have a signal-value-range multiplex output is inherently recognized if the conditions have not been met a predefined number of times).

Therefore, it would be obvious to a person of ordinary skill in the art at the time the invention was made to use Stavheim et al's counting method with the modified method of Yook so that the type of sensor would accurately be determined after being checked many times as suggested by Stavheim et al. (column 8, line 36-41).

Regarding claim 13, Yook fails to disclose that the method used in the arrangement, wherein the sensor having the signal-value-range multiplex output for the

measuring signal will be recognized if the steps of determining have been met a predefined number of times, and otherwise the sensor not having a signal-value-range multiplex output for the measuring signal will be recognized.

Stavnheim et al. discloses a method for recognizing a sensor (failure sensor) if the condition (figure, step 132) has been met a predefined number of times (column 9, line 24-29; also see figure 2, step 136), and otherwise the sensor not having a signal-value-range multiplex output for measuring signal will be recognized (it should be noted that the sensor does not have a signal-value-range multiplex output is inherently recognized if the conditions have not been met a predefined number of times).

Therefore, it would be obvious to a person of ordinary skill in the art at the time the invention was made to use Stavheim et al's counting method with the modified method used in the arrangement of Yook so that the type of sensor would accurately be determined after being checked many times as suggested by Stavheim et al. (column 8, line 36-41).

13. Claims 4, 5, 9, 10, 14 and 15 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yook (U.S. Patent Application Publication 2003/0225505) in view of Faymon et al. (U.S. Patent No. 6,633,828) as applied to claim 1 above, and in further view of Elenich et al. (U.S. Patent Application Publication 2003/0136173)

Regarding claim 4, the modified method of Yook fails to disclose that steps are carried out in the case of a recognized sensor having a signal-value-range multiplex output: the first and, dependent thereon, the second condition are checked.

Yook does not expressly disclose that the first and the second condition will be check after a sensor having a signal-value-range multiplex output is recognized. However, it is well known in the art that the method will be checked continuously after a sensor type has been recognized so that further sensor failure could accurately be determined when the failure occurs.

In addition, Yook fails to disclose a step for assigning a measurement value of the measuring signal, which value was registered a predefinable period of time before the first and second condition were met, to either a first or a second measured variable depending on the sign of the gradient of the measuring signal **or** depending on the measurement's absolute value.

Elenich et al. disclosed a diagnostic system and method having a method for assigning (initialization) a measuring value of the measuring signal (figure 1, step 104), which value was registered a predefinable period of time (when an engine is started) [paragraph 0015, line 1-2; also see figure 1, step 104] before the first and second condtion were met (figure 2, step 204), to either a first or a second measured variable (FCp or FTLref) depending on the measurement's absolute value [paragraph 15, line 1-5].

A person of ordinary skilled in the art would also have recognized that the assigned variable depends on the absolute value of the measuring signal since it is well

known in the art that the negative value of a signal simply means the opposite flow of current; therefore the negative value is treated as a positive value.

It would have been obvious to a person of ordinary skilled in the art at the time the invention was made to use Elenich et al's variable initiating method with the modified method of Yook so that the operation of the sensor could be controlled by an algorithm [Elenich, paragraph 0003, line 11-12].

Regarding claims 5, Yook discloses that a fault will be recognized if the first and second conditions are not met during a predefinable period of time [paragraph 0027, line 1-10].

Regarding claim 9, the modified method of Yook fails to disclose that steps are carried out in the case of a recognized sensor having a signal-value-range multiplex output:

- repeating the steps of determining

- assigning a measurement value of the measuring signal, which value was registered a predefinable period of time before the steps of determining were met, to either a first of a second measured variable depending on the sign of the gradient of the measuring signal ***or*** depending on the measurement value's absolute value.

Even though Yook does not expressly disclose that steps of determining is repeating, a person of ordinary skilled in the art would have applied the same method

after a sensor type has been recognized so that the sensor type could accurately be determined.

Elenich et al. disclosed a step of assigning (initialization) a measurement value of the measuring signal (figure 1, step 104), which was registered a predefinable period of time (when an engine is started) [paragraph 0015, line 1-2; also see figure 1, step 104] before the steps of determining were met (figure 2, step 204, to either a first of a second measured variable (FCp or FTLref) depending on the measurement value's absolute value (paragraph 15, line 1-5).

A person of ordinary skilled in the art would have recognized that the assigned variable depends on the absolute value of the measuring signal since it is well known in the art that the negative value of a signal simply means the opposite flow of current; therefore the negative value is treated as a positive value.

It would have been obvious to a person of ordinary skilled in the art at the time the invention was made to use Elenich et al's variable initiating method with the modified method of Yook so that the operation of the sensor could be controlled by an algorithm [paragraph 0003, line 11-12].

Regarding claims 10, Yook discloses that a fault will be recognized if the first and second conditions are not met during a predefinable period of time [paragraph 0027, line 1-10].

Regarding claim 14, the modified arrangement of Yook fails to disclose that in case of a recognized sensor having a signal-value-range multiplex output a measurement value of the measuring signal, which value was registered a predefinable period of time before the determinations were met, is assigned to either a first or a second measured variable depending on the sign of the gradient of the measuring signal or depending on the measurement value's absolute value.

Elenich et al. disclosed a method for assigning (initialization) the measurement value of the measuring signal (figure 1, step 104) which value was registered a predefinable period of time (when an engine is started; also see figure 1, step 104) before the determination were met (figure 2, step 204), to either a first of a second measured variable (FCp and FTLref) depending on the measurement value's absolute value [paragraph 0015, line 1-5].

A person of ordinary skilled in the art would have recognized that the assigned variable depends on the absolute value of the measuring signal since it is well known in the art that the negative value of a signal simply means the opposite flow of current; therefore the negative value is treated as a positive value.

It would have been obvious to a person of ordinary skilled in the art at the time the invention was made to use Elenich et al's variable initiating method with the modified method of Yook so that the operation of the sensor could be controlled by an algorithm [paragraph 0003, line 11-12].

Regarding claims 15, Yook discloses that a fault will be recognized if the first and second conditions are not met during a predefinable period of time [paragraph 0027, line 1-10].

Citation of Pertinent Prior Art

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,016,465 to Kelly teaches a sensor fault detection system.

U.S. Patent No. 7,021,117 to Cho teaches a method for diagnosing a noisy failure of a fuel level sensor in a vehicle.

U.S. Patent No. 6,115,654 to Eid et al. teaches a universal sensor interface system and method.

U.S. Patent No. 5,754,963 to Nunneley et al. teaches a method and apparatus for diagnosing and isolating faulty sensors in a redundant sensor system.

U.S. Patent No. 6,421,625 to Cianciara et al. teaches a method for checking analog sensors.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MANKO CHEUNG whose telephone number is

(571)270-7917. The examiner can normally be reached on Monday through Thursday, 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on (571)272 -2391. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M.C.

/Seungsook Ham/
Supervisory Patent Examiner
Art Unit 4154